

CLAIMS

What is claimed is:

1. A method for securely transmitting data comprising:
 - obtaining data on a computer system for transmission;
 - encrypting the data a first time such that the data is once encrypted;
 - packetizing the once encrypted data;
 - encrypting the packetized, once encrypted data a second time such that the data is twice encrypted; and
 - transmitting the packetized, twice encrypted data.
2. The method according to Claim 1, wherein encrypting the data a first time comprises encrypting the data at a data link layer.
3. The method according to Claim 1, wherein encrypting the packetized, once encrypted data a second time comprises encrypting the data at an Internet Protocol layer.
4. The method according to Claim 1, further comprising
 - transmitting the once encrypted data from the computer system to an interface device; and
 - receiving the once encrypted data at the interface device.
5. The method according to Claim 4, wherein transmitting the once encrypted data comprises transmitting the once encrypted data using a modem.
6. The method according to Claim 5, wherein the modem is an encrypting modem.
7. The method according to Claim 4, wherein receiving the once encrypted data comprises receiving the once encrypted data using a modem.

8. The method according to Claim 7, wherein the modem is an encrypting modem.
9. The method according to Claim 1, wherein transmitting the packetized, twice encrypted data comprises transmitting the packetized, twice encrypted data using a network interface card.
10. The method according to Claim 3, wherein the data encrypted at an Internet Protocol layer is encrypted using Internet Protocol Security protocols.
11. The method according to Claim 4, wherein transmitting the packetized, twice encrypted data comprises transmitting the packetized, twice encrypted data from the interface device.
12. The method according to Claim 1, wherein transmitting the packetized, twice encrypted data comprises transmitting the packetized, twice encrypted data over a network.
13. The method according to Claim 12, wherein the network is the Internet.
14. A method for securely receiving data comprising:
 - receiving packetized, twice encrypted data;
 - decrypting the packetized, twice encrypted data a first time such that the packetized data is once decrypted;
 - reconstructing the packetized, once decrypted data; and
 - decrypting the reconstructed, once decrypted data a second time.
15. The method according to Claim 14, wherein receiving the packetized, twice encrypted data comprises receiving the packetized, twice encrypted data from a network.
16. The method according to Claim 15, wherein the network is the Internet.
17. The method according to Claim 14, wherein receiving packetized, twice encrypted data comprises receiving packetized, twice encrypted data at an interface device.

18. The method according to Claim 14, wherein decrypting the packetized, twice encrypted data a first time comprises decrypting the packetized, twice encrypted at an Internet Protocol layer.

19. The method according to Claim 17, further comprising:

transmitting the reconstructed, once decrypted data from the interface device;

and

receiving the reconstructed, once decrypted data at a computer system.

20. The method according to Claim 19, wherein transmitting the reconstructed, once decrypted data comprises transmitting the reconstructed, once decrypted data using a modem.

21. The method according to Claim 20, wherein the modem is a decrypting modem.

22. The method according to Claim 19, wherein receiving the reconstructed, once decrypted data comprises receiving the reconstructed, once decrypted data using a modem.

23. The method according to Claim 22, wherein the modem is a decrypting modem.

24. The method according to Claim 14, wherein decrypting the reconstructed, once decrypted data a second time comprises decrypting the reconstructed, once decrypted data at a data link layer.

25. The method according to Claim 14, wherein receiving the packetized, twice encrypted data comprises receiving the packetized, twice encrypted data using a network interface card.

26. The method according to Claim 18, wherein the data decrypted at an Internet Protocol layer is decrypted using Internet Protocol Security protocols.

27. A method for securely transmitting and receiving data comprising:

obtaining data on a first computer system for transmission;
encrypting the data a first time such that the data is once encrypted;
transmitting the once encrypted data from the first computer system to a first interface device;
receiving the once encrypted data at the first interface device;
packetizing the once encrypted data;
encrypting the packetized, once encrypted data a second time such that the data is twice encrypted; and
transmitting the packetized, twice encrypted data from the first interface device to a second interface device;
receiving packetized, twice encrypted data at the second interface device;
decrypting the packetized, twice encrypted data a first time such that the packetized data is once decrypted;
reconstructing the packetized, once decrypted data;
transmitting the reconstructed, once decrypted data from the second interface device to a second computer system;
receiving the reconstructed, once decrypted data at the second computer system;
and
decrypting the reconstructed, once decrypted data a second time.

28. The method according to Claim 27, wherein encrypting the data a first time comprises encrypting the data at a data link layer.

29. The method according to Claim 27, wherein encrypting the packetized, once encrypted data a second time comprises encrypting the packetized, once encrypted data at an Internet Protocol layer.

30. The method according to Claim 27, wherein transmitting the packetized, twice encrypted data comprises transmitting the packetized, twice encrypted data over a network.

31. The method according to Claim 30, wherein the network is the Internet.

32. The method according to Claim 27, wherein receiving the packetized, twice encrypted data comprises receiving the packetized, twice encrypted data from a network.

33. The method according to Claim 32, wherein the network is the Internet.

34. The method according to Claim 27, wherein decrypting the packetized, twice encrypted data a first time comprises decrypting the packetized, twice encrypted data at an Internet Protocol layer.

35. The method according to Claim 27, wherein decrypting the reconstructed, once decrypted data a second time comprises decrypting the reconstructed, once decrypted data at a data link layer.

36. A system for securely transmitting and receiving data comprising:
a first computer system for encrypting and transmitting data, the first computer system having a transmission mechanism;

a first interface device for receiving once encrypted data from the first computer system, and for packetizing, encrypting and transmitting data, the first interface device having a receiving mechanism and a network connection;

a second interface device for receiving twice encrypted data from the first interface device, and for decrypting, reconstructing and transmitting data, the second interface device having a network connection and a transmission mechanism; and

a second computer system for receiving once decrypted data from the second interface device and for decrypting data, the second computer system having a receiving mechanism,

wherein the first computer system once encrypts data and transmits the once encrypted data to the first interface device via the transmission mechanism of the first computer system, and

wherein the first interface device receives the once encrypted data via the receiving mechanism of the first interface device, packetizes the once encrypted data, encrypts the once

encrypted data and transmits twice encrypted data to the second interface device via a network, and

wherein the second interface device receives the twice encrypted data from the first interface device via a network, once decrypts the twice encrypted data, reconstructs the packetized data and transmits reconstructed, once decrypted data to the second computer system via the transmission mechanism of the second interface device, and

wherein the second computer system receives once decrypted data from the second interface device via the receiving mechanism of the second computer system and decrypts again the once decrypted data.

37. The system according to Claim 36, wherein the data once encrypted by the first computer is encrypted at a data link layer.

38. The system according to Claim 36, wherein the data encrypted a second time by the first interface device is encrypted at an Internet Protocol layer.

39. The system according to Claim 36, wherein the data once decrypted by the second interface device is decrypted at an Internet Protocol layer.

40. The system according to Claim 36, wherein the data twice decrypted by the second computer is decrypted at a data link layer.

41. The system according to Claim 36, wherein the network is the Internet.

42. A method for transmitting secure data comprising:

encrypting the data at a data link layer;

packetizing the data;

encrypting the packetized data at an Internet Protocol layer; and

transmitting the packetized, encrypted data over a network.

43. The method according to Claim 42, wherein the network is the Internet.

44. A method for transmitting secure data comprising:
 encrypting the data at an Internet Protocol layer;
 further encrypting the encrypted data at a data link layer; and
 transmitting the data over a communication link.
45. The method according to Claim 44, further comprising the step of packetizing the data.
46. The method according to Claim 44, wherein transmitting the data comprises transmitting the data using a network interface card.
47. The method according to Claim 44, wherein the data encrypted at an Internet Protocol layer is encrypted using Internet Protocol Security protocols.
48. A method according to Claim 44, wherein the communication link is a network.
49. A method according to Claim 48, wherein the network is the Internet.
50. A method for receiving secure data comprising:
 receiving the data over a communication link.
 decrypting the data at a data link layer; and
 further decrypting the decrypted data at an Internet Protocol layer.
51. The method according to Claim 50, further comprising the step of reconstructing the data.
52. The method according to Claim 50, wherein receiving the data comprises receiving the data using a network interface card.
53. The method according to Claim 50, wherein the data decrypted at an Internet Protocol layer is decrypted using Internet Protocol Security protocols.

54. A method according to Claim 50, wherein the communication link is a network.

55. A method according to Claim 54, wherein the network is the Internet.

continued on next page